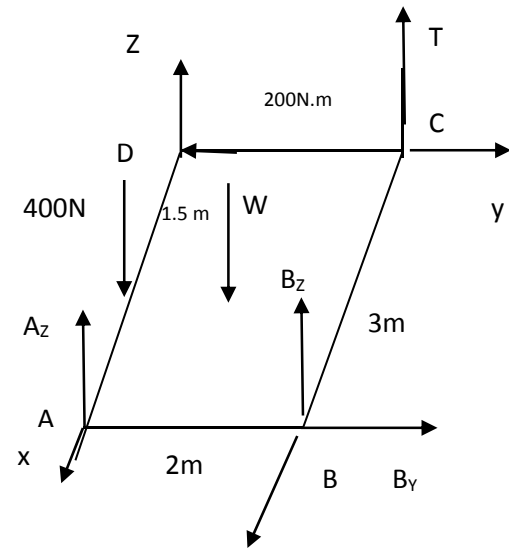


1. The plate shown in fig.of weight (1000 N) and dimensions (2m\*3m) is supported at (A) on a roller and ball-and-socket at (B) . A rope at (C) lifts the plate. If the shown acting loads and plate are in equilibrium , determine reactions at supports and also the tension in the rope



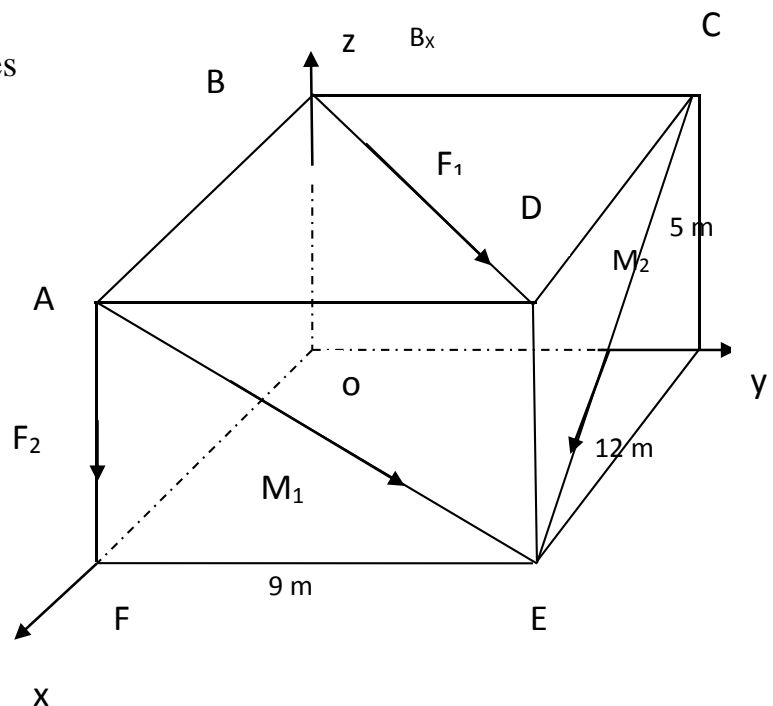
2. a) replace the set of forces and couples shown by a wrench at (o).

$$F_1 = 30 \text{ N}$$

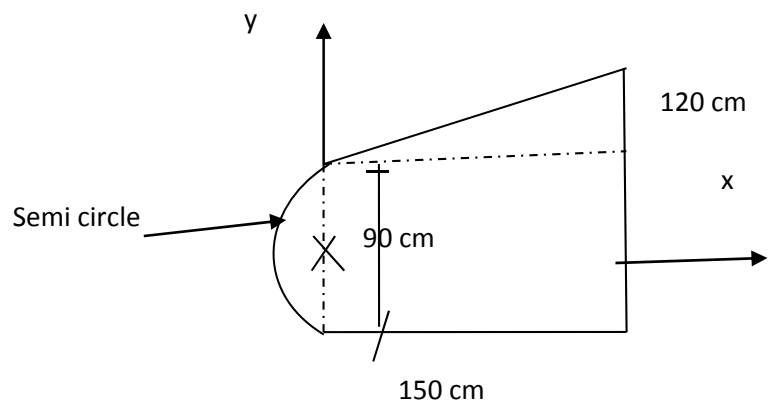
$$F_2 = 20 \text{ N}$$

$$M_1 = 20\sqrt{106} \text{ N.m}$$

$$M_2 = 156 \text{ N.m}$$



- b) Determine the centroid for the shown area



3. Determine forces in marked members for the shown truss.

$P=100\text{ N}$

